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मानक

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IS 4291 (1996): C-washers [PGD 2: Machine Tool Elements and Holding Devices]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक
सी-वाशर — विशिष्टि
(पहला पुनरीक्षण)

Indian Standard
C-WASHERS — SPECIFICATION
(*First Revision*)

ICS 21.060.30

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Machine Tool Elements and Holding Devices Sectional Committee had been approved by the Production Engineering Division Council.

This Indian Standard was first issued in 1967. The present revision of the standard has been taken up to bring the standard in line with the present practice.

This standard is one of a series of Indian Standards relating to the elements of jigs and fixtures. This has been undertaken to prevent an unnecessarily large variety of shapes and dimensions of these elements being used, as well as to obtain interchangeability of these elements.

While preparing this standard, assistance has been derived from DIN 6372-1972 'C-Washers' issued by Deutsches Institut für Normung (DIN).

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

C-WASHERS — SPECIFICATION

(First Revision)

1 SCOPE

This standard specifies the material and dimensions for C-washers for jigs and fixtures.

2 REFERENCES

2.1 The following standards contain provisions which, through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below :

<i>IS No.</i>	<i>Title</i>
2102 (Part 1) : 1993	General tolerances: Part 1 Tolerances for linear and angular dimensions without individual tolerance indications (<i>third revision</i>)
3403 : 1981	Dimensions for knurls (<i>revised</i>)
4432 : 1988	Case hardening steels (<i>first revision</i>)

3 DIMENSIONS

3.1 The dimensions for C-washers shall be as given in Table 1.

3.2 Knurling shall be done as per IS 3403 : 1981.

4 TOLERANCES

4.1 The dimensional deviation for untoleranced dimensions shall be of coarse class in accordance with IS 2102 (Part 1) : 1993.

5 MATERIAL

5.1 C-washers shall be manufactured from suitable quality case hardening steel (*see* IS 4432 : 1988) meeting the requirements as given in 6.

6 HARDNESS

6.1 The C-washers shall be hardened all over to a hardness of 370 to 410 HV 10 (\approx 38 to 42 HRC).

7 FINISH

7.1 The C-washers shall be free from cracks, burrs, pits and other defects.

8 PRESERVATION AND PACKING

8.1 A suitable anti-corrosive surface treatment shall be given to C-washers.

8.2 The C-washers shall be packed in accordance with the best trade practice.

9 DESIGNATION

9.1 The C-washers shall be designated by the nominal size and the number of this standard.

Example:

A C-washer having nominal size 12 shall be designated as:

C-Washer IS 4291 12

10 MARKING

10.1 The packages containing C-washers shall be marked with the following details:

- a) Manufacturer's name or trade-mark, and
- b) Nominal size.

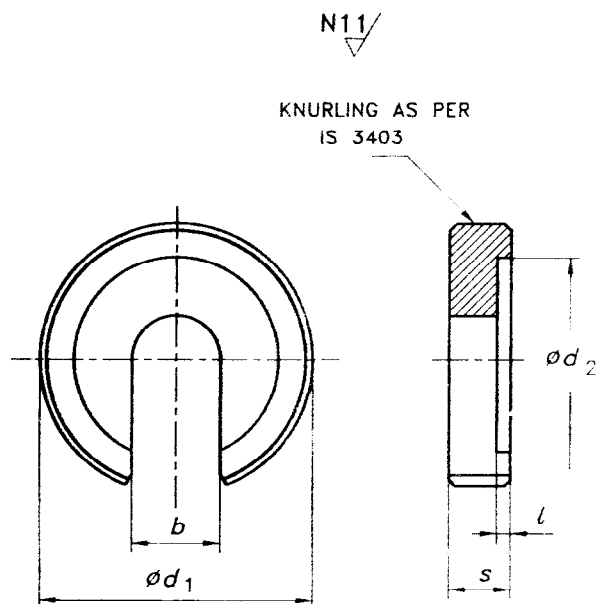
10.2 BIS Certification Marking

The product may also be marked with Standard Mark.

10.2.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

Table 1 Dimensions for C-Washers
(Clause 3.1)

All dimensions in millimetres.



Nominal Size	b	$d_1^{(1)}$	d_2	l	s	Mass kg/100 Pieces Approx
6	6.4	22	16	0.8	6	1.2
8	8.4	28	21	1	7	2.2
10	10.5	34	25	1.2	8	4
12	13	40	30	1.8	9	5.8
16	17	56	37	1.8	12	16.5
20	21	64	45	2	14	23
24	25	75	52	2	16	32
30	31	90	65	2	18	72
36	37	100	75	2.5	20	87

⁽¹⁾ Dimension " d_1 " is before knurling.

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This Indian Standard has been developed from Doc No. PE 02 (0074).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones : 323 01 31, 323 94 02, 323 83 75

Telegrams: Manaksanstha
(Common to
all offices)

Regional Offices:

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg
NEW DELHI 110002

Telephone

{ 323 76 17
323 38 41

Eastern : 1/14 C. I. T. Scheme VII M, V. I. P. Road, Maniktola
CALCUTTA 700054

{ 337 84 99, 337 85 61
337 86 26, 337 86 62

Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022

{ 60 38 43
60 20 25

Southern : C. I. T. Campus, IV Cross Road, MADRAS 600113

{ 235 02 16, 235 04 42
235 15 19, 235 23 15

Western : Manakalaya, E9 MIDC, Marol, Andheri (East)
MUMBAI 400093

{ 832 92 95, 832 78 58
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